

What is claimed is:

1. A drive circuit for a lamp comprising:
an electronic switch connected in series with a lamp and a source of DC voltage and
having a control input, and
a pulse-width-modulation (PWM) control circuit having an input connectable to the
source of DC voltage and an output connected to the control input of the electronic switch for
varying lamp brightness in proportion to the PWM duty cycle,
the control circuit including a temperature-sensing circuit for reducing the PWM duty
cycle when lamp temperature exceeds a predetermined temperature.
2. The drive circuit of claim 1, wherein the control circuit includes a timing circuit
and the temperature-responsive circuit includes circuitry for altering impedance of the timing
circuit.
3. The drive circuit of claim 2, wherein the timing circuit includes an RC circuit and
the impedance altered by the temperature-responsive circuit is in a capacitance discharge circuit.
4. The drive circuit of claim 2, wherein the circuitry for altering impedance includes
two resistances connected in parallel and a thermal switch in series with one of the resistances.
5. The drive circuit of claim 4, wherein the control circuit includes a selectively
operable brightness control switch connected in series with the thermal switch.
6. The drive circuit of claim 1, and further comprising adjustment circuitry for
automatically adjusting a control voltage of the control circuit in response to a change in the
voltage of the source.
7. The drive circuit of claim 6, wherein the adjustment circuitry includes a supply
voltage-dependent voltage regulator for maintaining a constant operating voltage for the control
circuit irrespective of the voltage of the source.

8. A portable spotlight comprising:
 - a lamp; and
 - a drive circuit connected to the lamp, the drive circuit including an electronic switch connected in series with a lamp and a source of DC voltage and having a control input, and
 - a pulse-width-modulation (PWM) control circuit having an input connectable to the source of DC voltage and an output connected to the control input of the electronic switch for varying lamp brightness in proportion to the PWM duty cycle,
 - the control circuit including a temperature-sensing circuit for reducing the PWM duty cycle when lamp temperature exceeds a predetermined temperature.
9. The spotlight of claim 8, wherein the control circuit includes a timing circuit having two resistances connected in parallel, the temperature-responsive circuit including a thermal switch connected in series with one of the resistances.
10. The spotlight of claim 9, and further comprising a selectively operable brightness control switch connected in series with the thermal switch.
11. The spotlight of claim 8, wherein the temperature-responsive circuit includes a thermal switch.
12. The spotlight of claim 8, wherein the control circuit includes an integrated circuit timer configured as an astable multivibrator.
13. A method of protecting a lamp circuit from overheating comprising:
 - pulse-width-modulating a supply voltage for controlling lamp brightness,
 - sensing lamp circuit temperature, and

reducing the duty cycle of pulse width modulation in response to a sensed temperature exceeding a predetermined temperature.

14. The method of claim 13, wherein the pulse-width-modulating includes connecting an electronic switch in series with the lamp and pulse-width-modulating a signal at a control terminal of the switch.

15. The method of claim 13, wherein the reducing includes altering a resistance in a timing circuit.

16. The method of claim 15, wherein the altering includes disconnecting one of two parallel-connected resistors.

17. The method of claim 13 and further comprising automatically adjusting the duty cycle of pulse width modulation in response to changes in the supply voltage.

18. A drive circuit for a lamp comprising:
the electronic switch means connected to a lamp for controlling current flow through the lamp from a DC source and having a control input, and
control means connected to the control input of the switch means for pulse-width-modulation (PWM) of the switch means for varying lamp brightness in proportion to PWM duty cycle,

the control means including temperature-responsive means for reducing the PWM duty cycle when lamp temperature exceeds a predetermined temperature.

19. The drive circuit of claim 18, wherein the temperature-responsive means includes thermal switch means.

20. The drive circuit of claim 18, wherein the control means includes selectively operable brightness selection means.

21. The drive circuit of claim 18, and further comprising adjustment means coupled to a control means for automatically adjusting the control voltage in response to changes in the voltage of the DC source.